What is claimed is:

1. A method for fabricating an integrated electronic device having an electric connection between a first electrode of a first substrate and a second electrode of a second substrate comprising the steps of:

forming a first bump made of a first metal component on the first electrode, a surface of the first electrode having repellency against melt of the first metal component;

forming a second bump made of a second metal component on the second electrode opposite to the first bump in a position; and

forming a connection part made of an eutectic alloy consisting of the first metal component and the second metal component between the first bump and the second bump so as to make an electric connection between the first electrode and the second electrode.

2. The method for fabricating an integrated electronic device according to claim 1, wherein a surface of the second electrode has an adhesive tendency to melt of the second metal component.

3. The method for fabricating an integrated electronic device according to claim 2, wherein the connection part is formed by an eutectic reaction between the first metal component and the second metal component below a melting temperature of the first metal component, and the eutectic

reaction ends before the eutectic reaction reaches the surface of the first electrode.

4. The method for fabricating an integrated electronic device according to claim 2, wherein the first electrode is selected from the group consisting of aluminum, chromium, titanium, and an alloy including any of these metals.

5. The method for fabricating an integrated electronic device according to claim 2, wherein the first metal component is tin, and the second metal component is selected from the group consisting of indium, bismuth, lead, and an alloy including any of these metals.

6. The method for fabricating an integrated electronic device according to claim 2, wherein the first metal component is indium, and the second metal component is selected from the group consisting of tin, bismuth, lead, and an alloy including any of these metals.

7. The method for fabricating an integrated electronic device according to claim 2, wherein the first metal component is bismuth, and the second metal component is selected from the group consisting of tin, indium, lead, and an alloy including any of these metals.

8. The method for fabricating an integrated electronic device according to claim 2, wherein the first metal component is lead, and the second metal component is selected from the group consisting of tin, bismuth, lead, and an alloy including any of these metals.

9. A method for fabricating an integrated electronic

device having an electric connection between a first electrode of a first substrate and a second electrode of a second substrate comprising the steps of:

forming a first bump made of a first metal component on the first electrode, a surface of the first electrode having repellency against melt of the first metal component;

forming a second bump made of a second metal component on the second electrode, the second bump being opposite to the first bump in a position, a surface of the second electrode having an adhesive tendency to melt of the second metal component, and the second metal component having a melting temperature lower than a melting temperature of the first metal component; and

forming a connection part between the first bump and the second bump by melting the second bump at a temperature lower than the melting temperature of the first metal component and then solidifying the second bump so as to make the electric connection between the first electrode and the second electrode.

10. An integrated electronic device having an electric connection between a first electrode on a first substrate and a second electrode on a second substrate comprising:

a first bump made of a first metal component formed on the first electrode;

a second bump made of a second metal component formed on the second electrode opposite to the first bump in a

position; and

a connection part made of an eutectic alloy consisting of the first metal component and the second metal component formed between the first bump and the second bump so as to make an electric connection between the first electrode and the second electrode.

11. An integrated electronic device having an electric connection connecting a first electrode on a first substrate with a second electrode on a second substrate comprising:

a first bump made of a first metal component formed on the first electrode;

a second bump made of a second metal component formed on the second electrode, the second metal component having a melting temperature lower than a melting temperature of the first metal component; and

a connection part formed between the first bump and the second bump which makes the electric connection between the first electrode and the second electrode.

12. The integrated electronic device according to claim 10, or 11, wherein a surface of the first electrode has repellency against molten metal including the first metal component and a surface of the second electrode having an adhesive tendency to molten metal including the second metal component,

13. An integrated electronic device comprising:

a first substrate having a first electrode formed on a first surface of the first substrate;

a second substrate having a second electrode formed on a second surface of the second substrate, the second surface opposing to the first surface so that the second electrode is aligned to the first electrode; and

an electric connection connecting the first electrode with the second electrode, the electric connection consisting of a solid phase component and a liquid phase component simultaneously at an operating temperature.

14. The integrated electronic device according to claim 13, wherein the electric connection essentially consists of metal components same as metal components of an eutectic alloy, an eutectic temperature of which is lower than the operating temperature, a mixing ratio of the metal components for the electric connection is deviated from a mixing ratio of the metal components for the eutectic alloy.

15. The integrated electronic device according to claim 14, wherein the metal components for the electric connection is selected from the group consisting of a binary alloy consisting of indium and bismuth, a ternary alloy consisting of indium, bismuth, and tin, and a four-element alloy consisting of indium, bismuth, tin, and lead.

16. The integrated electronic device according to claim 15, wherein indium is replaced by cadmium.

17. A method for fabricating an integrated electronic device having an electric connection connecting a first electrode of a first substrate with a second electrode of a

second substrate, both surfaces of the first and second electrodes having an adhesive tendency to molten metal, the method comprising the steps of:

forming a metal bump on the surface of the first electrode, the metal bump being made of a soldering metal alloy consisting of a solid phase component and a liquid phase component at an operating temperature; and

forming an electric connection between the first electrode and the second electrode by heating the soldering metal alloy so as to adhere to the surface of the second electrode.

18. A method for fabricating an integrated electronic device according to claim 17, wherein the soldering metal alloy consists of metal components same as metal components of an eutectic alloy and that a mixing ratio of the soldering metal alloy is deviated from a mixing ratio of the eutectic alloy, and an eutectic temperature of the eutectic alloy is lower than an operating temperature of the integrated electronic device.

19. A method for fabricating an integrated electronic device according to claim 18, wherein the soldering metal alloy is selected from the group consisting of a binary alloy of In-Bi, a tertiary alloy of Sn-Bi-In and four-element alloy of Sn-Pb-Bi-In.

20. A method for fabricating an integrated electronic device according to claim 19, wherein indium is replaced by cadmium.

21. A method for fabricating an integrated electronic device according to claim 19, wherein the soldering metal alloy of the electric connection is comprised of additional minor components that are harmless for the soldering metal alloy to have the liquid phase component at an operating temperature of the integrated electronic device.

22. A method for fabricating an integrated electronic device having an electric connection between a first electrode of a first substrate and a second electrode of a second substrate comprising the steps of:

forming a first metal layer on a surface of a first electrode on a first substrate, the first metal layer capable of composing an eutectic alloy with gallium (Ga);

forming a bump of Ga-rosin mixture on the first metal layer selectively ; and

forming the electric connection between the first electrode and the second electrode by heating the bump of Ga-rosin mixture maintaining the bump of the Ga-rosin mixture in contact with the second electrode to react gallium in the Ga-rosin mixture with the first metal layer into the alloy capable to adhere to the first and second electrodes.

23 A method for fabricating an integrated electronic device according to claim 21, wherein the first metal layer is selected from the group consisting of tin, indium, silver, and zinc.

~~23.~~ 24. A method for fabricating an integrated electronic

Rule 126

device according to claim 1, 9, 17, and 21, wherein the first substrate is a semiconductor chip and the second substrate is a circuit board.